

Response to Office Action
Dated July 6, 2004

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REMARKS

This is in response to the Office Action dated July 6, 2004. Reconsideration is respectfully requested.

Summary of the Rejections

Claims 1 and 21-38 are pending and all are rejected. Claims 1 and 21-30 are rejected as obvious over U.S. Patent No. 3,598,157 to Farr in view of Australian Patent AU-A 1-59,354/80 to Williams. Claims 31-38 are rejected as obvious over Farr in view of Williams and further in view of U.S. Patent No. 4,659,871 to Smith et al.

Summary of Record of Interview Pursuant to 37 CFR 1.133

Applicant thanks the Examiner for the interview by telephone on July 14, 2004 granted to applicant's attorney, John Chionchio, in which the pending claims in the application were discussed along with cited references Farr and Williams. Applicant's attorney presented arguments in support of the position that the obviousness rejections of the claims on the basis of Farr and Williams were improper because there is no motivation to combine these references, and motivation is one of three elements necessary to establish a prima facie case of obviousness. The details of the arguments are accurately represented in the Examiner's interview summary of July 19, 2004.

The Examiner stated that, although the arguments had merit, he was not fully persuaded and requested that they be put in writing for more careful consideration. The Examiner further suggested that the claims be amended to better distinguish the claimed insulation material over that disclosed in the Farr reference.

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Support for Claim Amendments

The invention concerns an insulation module comprised of a fibrous insulation material having an outer surface attached to a cladding layer and an inner surface that interfaces with the item to be insulated. Independent Claims 1, 29 and 31 have been amended to recite that the fibers comprising the insulating material are substantially in contact with one another throughout the insulating material. The claim further recites that the insulating material is sealed over the entire inner surface by the sealing agent.

Support for these claim amendments may be found on page 2, lines 4-7, which lists synthetic and natural mineral fibers and specifically mentions fiberglass, which, when used as insulation, is well known to form unstriated layers of fibers in contact with one another as recited in the claims.

The Argument

Applicant respectfully traverses the rejections of the pending claims as obvious in view of the cited references and presents arguments below on a claim by claim basis in support of this position.

Claim 1

Claim 1, as amended, recites, in relevant part, an insulation module having an insulation layer formed of an insulating material comprised of fibers substantially in contact with one another throughout the insulating material. The insulation layer has an outer surface which is attached to a cladding layer, and an inner surface that interfaces with the component to be insulated. The inner surface of the insulation layer is sealed by a sealing agent. As described on page 4, beginning at line 15, the sealing agent contains the fibers and prevents their escape or detachment from the insulation layer during normal use of the insulation module.

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The structure of the insulation layer, as recited in Claim 1, is significantly different from that disclosed in Farr. As stated by the Examiner on page 3 of the Action, Farr discloses insulation in which fibers are sealed with a resin or binder and occupy "an island phase within the sea phase resin or binder". The accuracy of this description is confirmed in Farr, at column 3, beginning at line 48, which clearly describes the insulation as being "impregnated" with the binder; and further, at line 60, the insulation is described as being formed by a slurry of fiber and binder. Such a configuration isolates the fibers one from another because the binder or resin permeates the insulating material and prevents the fibers from contacting one another. This is unlike applicant's invention, wherein the insulating material is sealed by a sealing agent applied over the inner surface as recited in Claim 1. The sealing agent does not permeate the insulating material and isolate the fibers one from another as in Farr. This interpretation is supported on page 4 beginning at line 19, wherein the sealing agent is described as being "sprayed or otherwise applied to the mineral fiber product".

Neither Farr nor Williams, either alone or in combination, teaches or suggests insulating material having fibers substantially in contact with one another, attached to a cladding layer and sealed over an inner surface as recited in Claim 1. Therefore, neither of these references can support a rejection of Claim 1 on the basis of obviousness, because, to establish a prima facie case of obviousness the prior art reference or references when combined, must teach or suggest all the claim limitations. In view of the failure of the cited references to meet the requirements necessary to establish a prima facie case of obviousness, the applicant requests that the rejection of Claim 1 be withdrawn.

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It is further known that references must meet an additional requirement to establish a prima facie case of obviousness. Specifically, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference teachings. There is no motivation to modify Farr by the teachings of Williams, as suggested by the Examiner, to obtain applicant's invention.

Farr is cited by the Examiner for its teaching of a sealed fibrous insulating material. Williams is cited for its teaching of a cladding layer attached to an unsealed fibrous insulating material. Ignoring for the moment the differences between Farr and applicant's invention as described above, applicant contends that there is no suggestion or motivation to combine these references as suggested by the Examiner because Farr has no need for a cladding layer as taught by Williams, and such a cladding layer would render Farr unsatisfactory for its intended purpose, as described below.

Williams teaches, on page 7, lines 4-13, an insulation module where insulation such as fiberglass is glued to the inside surface of tubular sheathing. Clearly, the sheathing or cladding is necessary to support the fiberglass, which has no inherent stiffness and cannot support itself. However, Farr teaches a fibrous insulator that is self supporting. Indeed, at column 3, beginning at line 21, Farr expressly teaches that the material comprising the insulation material have "the necessary insulation properties and sufficient mechanical strength, so that lengths of insulation will support their own weight during handling". It is a logical conclusion that this is why the binder or resin must permeate the insulating layer, i.e., so that the fibrous medium, inherently lacking in any stiffness, can be self supporting.

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It is unreasonable to posit that one of ordinary skill in the art would be motivated to add a cladding layer, as taught in Williams, to the insulation material of Farr when there is no need for such a modification of Farr, since the cladding layer provides support to a fibrous insulation medium, but such support is not needed since Farr expressly teaches a self supporting fibrous insulation medium.

In fact, there is a reason that a cladding layer would be detrimental to the performance of Farr, and as such, there is clear motivation to avoid the proposed modification. Farr teaches piping insulation that can be adapted to any size pipe. As shown in Figure 1, the insulation 10 has openings 14 that are stepped, having a plurality of different diameters arranged lengthwise adjacent to one another. As described in Farr at column 2, beginning at line 7, "[w]hen it is desired to use the fitting insulation shown in Figure 1 for 2 inch pipe insulation, the ends of the fitting shown in Figure 1 are cut off, as by a knife or other suitable means, inwardly of the first internal shoulder to remove the cylindrical section 18-2 for the smaller 1 1/2 inch pipe and leave the step 18-1 whose surface is sized to engage the 2 inch pipe".

Thus, effective use of the insulation in Farr requires that it be readily modifiable, by cutting, to adapt the insulation for a particular pipe size. Cutting of the insulation would be greatly inhibited by the addition of a cladding layer, especially if, as expressly taught in Farr, the insulation is to be cut with a knife. Cladded insulation would clearly be unsatisfactory for the intended purpose expressed in Farr, i.e., a readily and easily modifiable insulation adaptable for a variety of pipe sizes.

It is well established that if the proposed modification would render the prior art invention being modified

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unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. (In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984)).

Applicant respectfully contends that the references Farr and Williams fail to meet the requirements necessary to establish the prima facie case of obviousness in support of the rejections of Claim 1 because there is no motivation to combine the references, and even when combined, the references do not teach or suggest all claim limitations. In view of the arguments presented, applicant requests that the rejection of Claim 1 be withdrawn.

Claims 21-28 depend upon Claim 1, either directly or indirectly, and should be allowable for the same reasons that Claim 1 is allowable.

Independent Claim 29, as amended, is substantially similar to Claim 1 and should be allowable for the same reasons that Claim 1 is allowable. Analogously, Claim 30, dependent upon Claim 29, should also be allowable.

Independent Claim 31 is rejected as obvious over Farr in view of Williams and further in view of Smith. However, Claim 31, as amended is substantially similar to Claims 1 and 29 and the same arguments used to show allowability of these claims over Farr and Williams can be used to show the allowability of Claim 31. Smith is cited for its teachings of particular materials for the binder or resin material but does not affect applicant's arguments concerning patentability of Claim 31 since, as explained above, Farr and Williams are not properly combinable and even when combined they fail to teach or suggest all claim limitations found in any of the independent claims 1, 29 and 31.

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Claims 32-37 depend upon Claim 31 and should be allowable for the same reasons that Claims 1, 29 and 31 are allowable.

Summary

Applicant has demonstrated by the arguments and claim amendments presented herein that the cited references fail to meet the requirements necessary to establish a prima facie case of obviousness and, therefore, cannot properly support the rejections of the pending claims. The references are not properly combinable because there is no motivation for the combination, and even when combined the cited references fail to teach or suggest all claim limitations. In view of the arguments and amendments presented herein, applicant requests that the rejections be withdrawn and the application passed to issue.

Respectfully submitted,

SYNNESTVEDT & LECHNER LLP

By: 

John A. Chionchio
Reg. No. 40,954

1101 Market Street, Suite 2600
Philadelphia, PA 19107-2950
Telephone: (215) 923-4466
Facsimile: (215) 923-2189

JAC/dml